

CLAIMS

1. A method for determining a human's capacity to metabolize a substrate of a CYP2C19 enzyme, said method comprising the steps of:

- 5 a) isolating single stranded nucleic acids from the human, said nucleic acids encoding 5' flanking regions of *CYP2C19* genes present on each homologous chromosome 10 of the human, wherein said region is represented by a sequence as set forth in SEQ ID NO:1; and
- 10 b) detecting at least two polymorphisms within the region, wherein the polymorphisms are nucleotides present at polymorphic sites represented by positions 352 and 1060 of SEQ ID NO:1.

2. A sequence determination oligonucleotide suitable for detecting a polymorphic site in a 5' flanking region of a *CYP2C19* gene, said oligonucleotide

15 comprising a sequence selected from the group consisting of SEQ ID NO:2; SEQ ID NO:3; SEQ ID NO:4; SEQ ID NO:5; SEQ ID NO:6; SEQ ID NO:7; SEQ ID NO:20; SEQ ID NO:21; SEQ ID NO:22; SEQ ID NO:23; SEQ ID NO:24; SEQ ID NO:25; SEQ ID NO:26; SEQ ID NO:27; SEQ ID NO:28; SEQ ID NO:29; SEQ ID NO:30; SEQ ID NO:31; SEQ ID NO:32; SEQ ID NO:33; SEQ ID NO:34; SEQ ID NO:35;

20 SEQ ID NO:36; and SEQ ID NO:37.

3. An oligonucleotide primer pair suitable for amplifying a 5' flanking region of a *CYP2C19* gene, said primer pair having sequences selected from the group consisting of: SEQ ID NO:8 and SEQ ID NO:9; SEQ ID NO:10 and SEQ ID

25 NO:11; SEQ ID NO:12 and SEQ ID NO:13; SEQ ID NO:14 and SEQ ID NO:15; SEQ ID NO:16 and SEQ ID NO:17; and SEQ ID NO:18 and SEQ ID NO:19.

4. An isolated polynucleotide comprising a sequence as set forth in SEQ ID NO:1.

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5. A kit comprising:

- a) a first pair of oligonucleotide primers for amplifying the polymorphic region corresponding to position 352 of SEQ ID NO:1;
- b) a second primer pair for amplifying the polymorphic region corresponding to position 1060 of SEQ ID NO:1;
- c) a first sequence determination oligonucleotide comprising a sequence selected from the group consisting of SEQ ID NO:3; SEQ ID NO:6; SEQ ID NO:22; SEQ ID NO:23; SEQ ID NO:27; SEQ ID NO:30; SEQ ID NO:33; and SEQ ID NO:36; and
- d) a second sequence determination oligonucleotide comprising a sequence selected from the group consisting of SEQ ID NO:4; SEQ ID NO:7; SEQ ID NO:24; SEQ ID NO:25; SEQ ID NO:28; SEQ ID NO:31; SEQ ID NO:34; and SEQ ID NO:37.

6. The kit of claim 5, wherein the first primer pair selected from the

group consisting of SEQ ID NO:8 and SEQ ID NO:9; SEQ ID NO:16 and SEQ ID NO:17; and SEQ ID NO:18 and SEQ ID NO:19; and the second primer pair is selected from the group consisting of SEQ ID NO:10 and SEQ ID NO:11; SEQ ID NO:12 and SEQ ID NO:13; and SEQ ID NO:14 and SEQ ID NO:15.